

### SUPPORT FOR THE AMENDMENT

Support for the amendment to claim 1 is found beginning on page 8, line 26 through page 9, line 1 of the specification. No new matter would be added to this application by entry of this amendment.

Upon entry of this amendment, claims 1-4 and 6-21 will remain active in this application.

### REQUEST FOR RECONSIDERATION

The claimed invention is directed to a foamed oil-in-water type emulsion comprising unsaturated fatty acid containing diglycerides and having 0 to 20 wt. % of saturated fatty acids.

Foamed oil-in-water type emulsions are commonly found as food compositions. Diglyceride containing compositions have received interest in view of disclosed beneficial health effects. Incorporation of diglyceride compositions into foamed oil-in-water type emulsions such as ice cream coatings and frozen sweets is desired. However, good foaming characteristics have not always been observed. Diglyceride compositions having good foaming characteristics and foam shape keeping ability have been reported by the combination of a liquid diglyceride and hydrogenated oil (JP 63-301765) (see pg 2, lines 1-4 of applicants' specification). However, hydrogenated oils, having been used as foaming fat or oil, carry the detriments of high saturated fatty acid and high trans acid contents (pg 2, lines 6-8 of applicants' specification). Accordingly, a diglyceride containing foamed oil-in-water type emulsion having good foaming properties and a low saturated fatty acid content is sought.

The claimed invention addresses this problem by providing a foamed oil-in-water type emulsion comprising an oil phase comprising 30-90 wt.% of diglycerides which comprises at least 80 wt. % of unsaturated fatty acids and **0 to 20 wt. % of saturated fatty acids** and a water phase comprising 5-80 wt.% of a sugar and/or sugar alcohol, the emulsion having a specific gravity of from 0.1-0.9 g/cm<sup>3</sup>. Applicants have discovered that a good foamed oil-in-water type emulsion of an unsaturated fatty acid containing diglyceride can be obtained with a composition containing 0 to 20 wt. % of saturated fatty acids. Such a foamed emulsion is nowhere disclosed or suggested in the cited prior art of record.

The rejections of claims 1-4 and 6-21 under 35 U.S.C. § 102(b) or in the alternative under 35 U.S.C. § 103(a) over Nomura et al. EP 402,090 alone and under 35 U.S.C. § 103(a) in view of Ono, U.S. 5,962,058, Lichtenstein et al. are respectfully traversed.

None of the cited prior art of record discloses or suggests a foamed oil-in-water type emulsion of an unsaturated fatty acid containing diglyceride composition comprising less than 20 wt. % of saturated fatty acids.

Nomura et al. describes an edible oil-in-water emulsion comprising a diglyceride mixture having an increasing melting point of 20°C or below (pg 2, lines 31-34). There is no discussion of limiting the saturated fatty acid content of the oil phase. To the contrary, example 10, cited by the examiner as containing a sugar in the aqueous phase, is prepared from an oil phase containing 15 parts of fat sample (9), 10 parts hardened palm oil, 10 parts of hardened rape seed oil and 5 parts of milk fat. Fat sample (9) contains only 9.1 wt. % of diglyceride. Thus, the contribution to the diglyceride content from fat sample (9) would only be 3.4 wt. % (15 parts of fat sample (9) x 9.1% diglyceride/40 total parts of oil). The contribution of diglyceride from each of the hardened palm oil and hardened rape seed oil would be very small as, in general, fat or oils are mostly triglyceride (e.g. 1.2 % for refined

rapeseed oil, see Table 7 of Nomura et al.) and would not suggest a diglyceride content of from 30-90 wt. %.

Examples 11 and 12 of Nomura et al. were prepared from fat samples (10) and (11) respectively which have higher diglyceride contents of 32.9 and 64.1%. However, even when prepared from 15 parts of a fat sample having a diglyceride concentration which is greater than 9.1%, these compositions fail to disclose or suggest a composition having 30-90 wt. % of diglyceride. Example 11 has a diglyceride contribution from fat sample (10) of 12.3% (15 parts of fat sample (10) x 32.9% diglyceride/40 total parts of oil). Example 12 has a diglyceride contribution from fat sample (11) of 24.03% (15 parts of fat sample (11) x 64.1% diglyceride/40 total parts of oil). Thus the only samples of the reference, identified by the examiner as suggesting the claimed composition in so far as a sugar is contained in the aqueous phase, do not suggest a diglyceride content of from 30-90 wt. %.

Moreover, in addition to failing to suggest a diglyceride content as claimed, the reference fails to suggest limiting the **saturated** fatty acid content of 0 to 20 wt.% in such a high diglyceride containing foamed composition. As discussed above and on page 2 of applicants' specification, foamed diglyceride compositions are known in combination with hydrogenated oils. The addition of hydrogenated oils, known to be high in saturated fats and trans fats, would imply that their presence believed to be essential in order to achieve adequate foaming properties for a diglyceride containing composition.

Examples 10-12 of the reference are all formed from an oil phase which comprises 50 % hardened vegetable oil (10 parts hardened palm oil, 10 parts hardened rape seed oil out of 40 part of oil phase). As hardened oils have **high saturated fatty acid contents** (pg 2, lines 6-8 of applicants' specification) such compositions do not suggest a composition having 0 to 20 wt. % of saturated fatty acids in the oil phase.

In contrast, the claimed invention is directed to a foamed oil-in-water type emulsion comprising 30-90 wt.% of diglyceride and a saturated fatty acid content 0 to 20 wt %.

Applicants note, the claims have been amended to recite a saturated fatty acid content of 0 to 20 wt. %. As the reference fails to disclose or suggest a diglyceride content of 30-90 wt. % and a saturated fatty acid content of 0 to 20 wt.%, the claimed invention is clearly neither anticipated nor made obvious from this reference.

The secondary references do not cure the basic deficiencies of the primary reference. To the contrary the secondary references only describe high saturated fatty acid containing compositions and therefore can not suggest a composition containing 0 to 20 wt. % of saturated fatty acids.

Ono et al. fail to describe a diglyceride content of 30-90 wt. % and a saturated fatty acid content of 0 to 20 wt.%. To the contrary, the examiner has cited Ono et al. for describing composition having a "high degree of saturated fatty acid components (pg 5 of the outstanding official action). Column 2 of the Ono et al. describes the diglyceride component as preferably having a saturated fatty acid content of 80% to less than 100%. Certainly there is no suggestion of **a saturated fatty acid content of 0 to 20 wt. %**.

Lichtenstein et al. has merely been cited to describe the preference of the cis form of fatty acids as compared with the trans form based on the disclosed effect on the serum lipoprotein cholesterol level. However, this reference fails to disclose or suggest a diglyceride content of 30-90 wt. % and a saturated fatty acid content of 0 to 20 wt.%.

As the cited combination of reference do not suggest a foamed oil-in-water type emulsion having a diglyceride content of 30-90 wt. % and a saturated fatty acid content of 0 to 20 wt. %, the claimed invention is clearly not disclosed or suggested by the cited references. Accordingly, withdrawal of the rejections under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a) is respectfully requested.

Application No. 10/671,591  
Reply to Office Action of April 6, 2006

Applicants submit that this application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.

Norman F. Oblon



---

Richard L. Chinn, Ph.D.  
Registration No. 34,305

Customer Number

**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 06/04)